OPENING OF A NEW LABORATORY AT THE ROTHAMSTED EXPERIMENTAL STATION.

ON July 20 Earl Carrington opened the "James Mason" laboratory for agricultural bacteriology at the Rothamsted Experimental Station. Sir John Evans, chairman of the Lawes Agricultural Trust Committee, presided, and among those also present were Mr. J. F. Mason, M.P., the donor of the laboratory, Sir T. H. Elliott, Sir Michael Foster, Sir R. P. Cooper, Mr. Laurence Hardy, M.P., Mr. F. A. Channing, M.P., Mr. Abel Smith, M.P., Mr. Phipson Beale, M.P., Prof. R. Meldola, president of the Chemical Society, Sir Charles Lawes Wittewronge, Dr. Hugo Müller, Dr. H. E. Armstrong, Dr. J. A. Voelcker, and Mr. J. Bowen Jones.

Sir John Evans, in his introductory remarks, explained that the building they were asking Lord Carrington to declare open was the gift of Mr. J. F. Mason, and was to be devoted to a class of work that had grown up since the original Rothamsted experiments were started, but which had become of cardinal importance in the study of the growth of crops. The difficulty of the Lawes Agricultural Trust Committee, carrying out as it was by private benefactions the work which in every other country was regarded as the duty of the State, was to find funds for such new developments, and he trusted that the President of the Board of Agriculture might soon be able to obtain a grant for the proposed council of agricultural research, and so furnish some assistance to themselves and other bodies concerned in similar investigations.

Lord Carrington expressed the pleasure it gave him to find himself at Rothamsted, which had been the pioneer of agricultural research, not only in England, but in the world. Agriculture was rapidly ceasing to be a rule-of-thumb business, and as a highly skilled industry was more and more requiring the assistance of such scientific investigations as were being carried out at Rothamsted. He sincerely hoped that some money might be found for the proposed council of agricultural research, but he felt bound to remind them that the income tax still stood at a shilling in the pound; but both he and the Government of which he was a member had every sympathy with the work represented by Rothamsted.

Sir Michael Foster then expressed the thanks of the Lawes Trust Committee to Mr. Mason for his munificent gift of the laboratory, and explained how the bacteria, the existence of which almost was unsuspected when the Rothamsted laboratory was built, were year by year being found to be of fundamental importance, not only to ourselves directly, but to the crops and to the soil. Sir Thomas Elliott, the Secretary of the Board of Agriculture, seconded the expression of thanks, and declared that gifts like Mr. Mason's were the best argument he could have in approaching the Treasury for assistance for the work of Rothamsted.

Mr. Mason then replied, and explained how he was led to establish this laboratory as the best means of securing the continuance of the work to which his father had devoted so many years and had so much at heart. He also trusted that it might be a means of stirring public opinion, both generally and in the House of Commons, to recognise the necessity of research if agriculture was to maintain its position in this country.

After the meeting the company was shown round the laboratories, and afterwards visited the experimental plots, where the wheat and barley in particular were showing very interesting results.

The new laboratory takes the form of a wing added on to the Lawes Testimonial Laboratory, which was built in 1855; it is built of brick from the designs of Mr. V. T. Hodgson. It owes its origin to Mr. James Mason, of Eynsham Hall, Oxon, who for many years carried out on his own estate extensive experiments on such questions as the utilisation of leguminous plants in increasing the fertility of the soil, and the unlocking of fertility stored up in the subsoil, a summary of which may be read in the Journal of the Royal Agricultural Society for 1904. Mr. Mason died in 1902, and in his memory Mr. J. F. Mason, M.P., presented the trust with 1000*l*. for the building and equipment of a bacteriological laboratory, together with a further sum of 50*l*. a year toward its working expenses. The building contains a main laboratory looking north, 25 feet by 15 feet, fitted with teak-topped working tables and slate slabs to carry the incubators; a preparation room, where the working tables are covered with lead; a dark-room for photography, polariscope work, &c.; and a room for the director. The whole is floored with pitch-pine blocks, and heated by steam from the old laboratory adjoining.

RECENT RESEARCHES IN REGIONAL GEOLOGY.

THE Geological Survey of Great Britain has issued a memoir (price 1*s*.) by Mr. A. J. Jukes-Browne, to accompany the colour-printed geological map, Sheet 282. The country dealt with lies south and east of Devizes, and contains exposures of almost horizontal strata, from the Middle Jurassic to the Lower Eocene. The author refers the superficial "clay with flints" to the weathering of Eocene material, and urges that its presence at any particular point shows that we are "not far below the ancient plane of erosion on which the lowest Eocene deposits were laid down." He has sustained this position more recently in an important paper (Quart. Journ. Geol. Soc., 1906, p. 159). Notes are given on economic geology, including the general character of the soils.

Another memoir of the survey, also issued in 1905, is by Mr. Fox-Strangways and Prof. Watts (price 2*s*.), on the country between Derby, Ashby-de-la-Zouch, and Loughborough, included in Sheet 141. The description of Charnwood Forest will probably attract most attention, and it is to be supplemented in a forthcoming memoir. Prof. Watts, from mapping the ground, finds that the famous "porphyroids" of the region are not lava-flows, but are intrusive (p. 9); they have, however, shared in the general cleavage and shearing, and thus were in place before the Charnwood mass became a mountainous knot in the Carboniferous sea. We find the term "fjord" hardly a happy one when applied to the inlet of a Triassic lake (p. 11), which has become revealed by latter-day denudation. But Prof. Watts's reconstruction of the Charnwood landscapes of Triassic times has already afforded us pictures for which we should be warmly grateful (see *Geographical Journal*, 1903). On p. 33, Mr. Fox-Strangways refers to an interesting puzzle as to the origin of certain Foraminifera once stated to be from the Keuper Marl. The suggestion is made that similar forms occur, as derived Liassic material, in the drift, and thence became erroneously recorded from the Keuper. With so many good geologists in the neighbourhood, this question ought not to be left long in uncertainty. The point suggests itself, moreover, that the local Boulder-clay, like that of the low ground of Lancashire, may possibly contain Foraminifera of its own, imported from some neighbouring sea. On this matter, by the by, a paper has reached us from Mr. Mellard Reade (Proc. Liverpool Geological Society, vol. x., part i., 1905), who believes that the abundance of Foraminifera in the Lancashire Boulder-clay points strongly to the probability of the whole of the low-level deposit having been laid down in marine waters under fairly quiet conditions. Mr. W. Edwards, on the other hand (*ibid.*), in a paper on the glacial geology of Anglesey, urges that the island was not submerged beneath the sea at the epoch of the formation of the well-known shell-bearing beds at Moel-y-Tryfan in Caernarvonshire.

A pleasant addition to the publications of the Geological Survey of Great Britain is the "Guide to the Geological Model of the Isle of Purbeck," by Mr. A. Strahan, F.R.S. (1906, price 6*d*.). The model, on the horizontal scale of six inches to one mile, was made by Mr. J. B. Jordan, and is accessible in the museum of the survey in Jermyn Street, London. Copies have also been acquired by the Government museums in Edinburgh and Dublin. The purpose of the model is educational, and the guide, by marginal notes, points out how it illustrates an "escarpment," an "anticline," a "trough-fault," and so forth, so that it serves as a companion to the ordinary text-book. For those unable to consult one of the copies of the model,

© 1906 Nature Publishing Group

the photograph and coloured geological map included in the guide will give a clear impression of its features.

Signor Luigi de Marchi has published, through the Reale Istituto Veneto (1905), a folio memoir on "L'Idrografia dei Colli Euganei," in which much attention is paid to the question of the change of slope in the bed of a stream according to the grouping of the rocks successively encountered by it. An interesting result (p. 46), borne out by other evidence, is that the trachytic masses round the central tuff-cone of the Venda are found, not to lie, as Suess and Reyer have supposed, upon fragmental deposits as relics of great viscid lava-flows, but represent independent volcanic necks rising through a mantle of softer rocks. Observations are added on the limitation of human activity on the mountain-sides by the progress of denudation.

In the *Verhandlungen der k.k geologischen Reichsanstalt* for 1905 Dr. Kerner (p. 127) gives the results of five weeks' study of the Neogene deposits of Sinj, in central Dalmatia, and (p. 593) describes the fossil plants collected. Dr. Franz Baron Nopcsa (*Jahrbuch*, *ibid.*, 1905, p. 85) leads us farther south, having been able, with the aid of the Turkish authorities, to study the geology of Albania. He gives a pleasant account of the country that should attract other travellers. Not every geologist can be an artist, and we feel that some of the drawings, made by the author from his photographs, might have been well entrusted to other hands. The author believes that the so-called Flysch of Albania and Bosnia is at latest of Middle Mesozoic age, and has nothing to do with the Flysch of the Dalmatian coast-ranges and of the Wiener Wald. Baron Nopcsa writes very modestly of his results; but he has clearly felt the fascination of working, within the bounds of Europe, in a virgin field. The bibliography provided should help explorers of various tastes.

In the same *Jahrbuch* (p. 349) Mr. W. A. Humphrey, "aus York, England," reports on the ore-deposits of the Stangalp. His remarks on the so-called Urgebirge of Styria and Carinthia are of general interest, since he finds that the gneiss and the mica-schist vary inversely in importance on the margin of a mass of alpine granite. This granite has affected even the interstitial material of the Carboniferous conglomerate, while tourmaline has been formed among the sediments far beyond the zone where they are injected with actual granite-veins. Mr. Humphrey therefore (pp. 363–5) regards the whole sedimentary and schistose mass as a continuous series, which became highly metamorphosed in its lower portions. Here we once more recognise the change of opinion, forced upon field-observers in very diverse areas, with regard to the alleged antiquity of schists in mountain-cores.

Dr. Ampferer's extensive paper (*ibid.*, pp. 451–562) on the Wettersteingebirge, among his favourite limestone Alps, introduces questions of torsional movement combined with thrust-planes. In *Spelunca*, Nos. 42 and 43 (1905), M. Martel deals with the subterranean aspects of limestones, in continuing his immensely valuable abstracts of recent papers upon caves. These two numbers, which are issued as one, cover the whole area outside France, and even contain references to Kerguelen Island and the Fijis.

G. A. J. C.

METEOROLOGICAL REPORTS.

IN the Journal of the Meteorological Society of Japan for February, Mr. H. Mukasa gives a summary of the temperature conditions at Chemulpo (Korea) for the years 1893–1903, from four observations daily. The mean of the daily maxima in summer is 80°·6, in winter 37°·9, and the mean of the minima 67°·3 and 22°·8 respectively. The absolute maximum was 99°·5, in August, 1901, and the minimum −1°·3, in February, 1895; the greatest daily range, 40°·3, also occurred in the latter month. The Journal for April contains an interesting contribution on the management of the wet-bulb thermometer, by Mr. T. Okada. It was pointed out by Dr. Edelmann in the *Meteorologische Zeitschrift* for 1896, p. 334, that the kind of covering used for conveying moisture to the bulb had considerable influence on the readings of the thermometer. Prof. Tanakadate has recently found that a Japanese paper called "Yoshinogami," made from fibres of a species of mulberry tree, was most suited for a cover for the wet-bulb both for temperatures above and below freezing point, and, being quite easy in manipulation, can be changed even daily without the slightest trouble. Mr. Okada's experiments show that the bulb covered with paper is more sensitive than one with the usual muslin covering, and that in frosty weather its indications give the humidity more in accordance with that shown by the hair-hygrometer. The paper is said to be suitable for all climates.

The Proceedings of the Rhodesia Scientific Association (vol. v., part ii.) contains monthly and annual means of meteorological observations made at Bulawayo (altitude about 4469 feet) from 1897 to 1904 by the Jesuit Fathers Barthélemy and Nicot. As the observations mostly refer to 9h. a.m., the results can only be taken as approximate, but the discussion by the Rev. E. Goetz, S.J., is nevertheless very useful. The absolute highest reading of the barometer was 26·171 inches (in July), and the lowest 25·397 inches (in January); the daily range rarely exceeds 0·1 inch. The temperature shows one minimum, in June, and two maxima, in October and January; the means of maximum and minimum readings for these months are 57°·5, 73°·7, and 72°·6 respectively. The absolute extremes were 105° in November and 33° in June (in June, 1905, not included in the tables, the temperature in the screen fell to 30°). The rainfall has two maxima, one in the beginning of December, followed by a serious break, and a second in the middle of January. Mr. Goetz states that this break in the rainfall is a very disastrous feature of the climate, as the crops are either destroyed or stunted by the burning sun. The annual rainfall averages 22·2 inches, and the rainy days seventy-four. Very little rain falls between May and September; it is very heavy during thunderstorms, and for some minutes falls at the rate of from 2 inches to 6 inches an hour.

Sir Charles Todd has recently published the meteorological observations made at the Adelaide Observatory and other places in South Australia during 1902 and 1903. He states that the year 1902 must be classed as one of the driest on record, particularly during the winter season (April to October). The returns for 1903 show a general improvement; on the average, the agricultural areas had about 3 inches above the normal rainfall. A marked feature of this year was that during every month, except September to November, the mean temperature at Adelaide was below the average; the lowest air temperature on record at that place, 32°·2, was observed on July 11. The highest shade-temperature was 105°·6, in February.

The report of the Government astronomer of Natal for the year 1905 has been condensed; in the case of the subsidiary stations, meteorological summaries only are given, and the daily results are only published for the observatory at Durban. The rainfall for the year at that place was 44·95 inches, which is 5·6 inches above the average of the previous twenty-one years. This result was owing to one of the most remarkable hurricanes that have occurred in Natal during the last thirty years, which swept over the entire colony with extraordinary severity on May 31 and June 1. The rainfall on these two days amounted to nearly 11 inches at Durban and to 17 inches at Umzinto. The mean temperature of the year was exceptionally low; the mean of the maxima was 78°·1 and of the minima 61°·4, and the extremes were 90°·7 and 45°·4 respectively. The only year of lower mean temperature was 1887.

Captain H. G. Lyons, director-general of the Survey Department, Egypt, has published his report on the rain of the Nile basin in 1905. The Egyptian and Soudan stations at which rainfall is measured only number thirty-one, but a good many other returns showing the days on which rain fell are received, and are to some extent useful in supplementing the information supplied by the recording stations; observations are also given for neighbouring territories. On the whole, the rainfall is said to have been everywhere deficient; the volume of the Nile flood considered as the volume passing Aswan between July 1 and October 31, was only 0·65 of the average for thirty

© 1906 Nature Publishing Group